

## ABSTRACT OF THE DISCLOSURE

A plasma generator, reactor and associated systems and methods are provided in accordance with the present invention. A plasma reactor may include multiple sections or modules which are removably coupled together to form a chamber. Associated with each section is an electrode set including three electrodes with each electrode being coupled to a single phase of a three-phase alternating current (AC) power supply. The electrodes are disposed about a longitudinal centerline of the chamber and are arranged to provide and extended arc and generate an extended body of plasma. The electrodes are displaceable relative to the longitudinal centerline of the chamber. A control system may be utilized so as to automatically displace the electrodes and define an electrode gap responsive to measure voltage or current levels of the associated power supply.